1.3.2

Sample Reports of Project Work/ Field Work / Internship

GREATER NOIDA INSTITUTE OF TECHNOLOGY (Engg. Institute)

ग्रेटर नोएडा इंस्टीट्यूट ऑफ टेक्नोलॉजी (इंजीनियरिंग इंस्टीट्यूट)

Affiliated To Dr. APJAKTU, Lucknow

Department of Civil Engineering

GNIOT
ENGG. INSTITUTE

Session 2021-22

Subject Name	:	**Mini Project/ Internship**
Subject Code	:	**KCE-354**
Semester/ Section	:	**III/ A**
Faculty Name	:	**Ms. Shreeja Kacker**
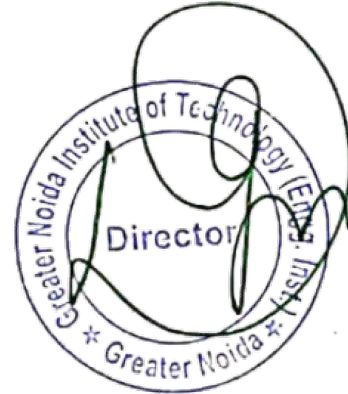
CERTIFICATE OF COMPLETION

This is to certify that **Ritesh Kumar Yadav (2001320000020), Simran (2101320000026), Rahul Kumar (2101320000022) & Mohd Mairajuddin (2101320000016)**, 2nd year, B.Tech, Department of Civil Engineering have completed their project work titled **'Preparation of Model of Hydraulic Powered Deck'** in our department from September, 2021 to March, 2022 as part of their Mini Project curriculum (KCE-354) in third semester.

Date:

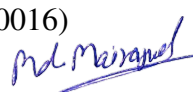Shreeja Kacker

(Project Coordinator)

DECLARATION

We hereby declare that this submission is our own work and that, to the best of our knowledge and belief. It neither contains material previously published or written by another person nor material which to a substantial extent has been accepted for the award of any other degree or diploma of the university or other institute of higher learning, except where due acknowledgment has in the text.

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It gives us a great sense of pleasure to present the report of the mini project undertaken during B.Tech Second Year. We owe special debt of gratitude to Ms. Shreeja Kacker, Assistant Professor, Department of Civil Engineering, Greater Noida Institute of Technology, for her constant support and guidance in the project. Her valuable suggestions and support not only helped us to reach the successful completion of the project, but also made us learn a lot.

We would like to thank Dr. R.K. Sharma, Head, Department of Civil Engineering, Greater Noida Institute of Technology, Greater Noida, for providing us with the opportunities of studying, learning and gaining practical experience in various fields during the period of project work. His valuable suggestions not only helped me to reach the successful completion of the task assigned, but also made me learn a lot. We also do not like to miss the opportunity to acknowledge the contribution of all faculty members of the department for their kind assistance and cooperation during the development of our project.

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ABSTRACT

Automatic Street Light Control System is a simple yet powerful concept, which uses a transistor as a switch. By using this system manual work is 100% removed. It automatically switches ON lights when the human being or vehicles stepped on the road due to this pressure on road comes into play and then lights will switch on.

This is done by a sensor called Light Dependent Resistor (LDR) which senses the light actually like our eyes. It automatically switches OFF lights whenever the human being and vehicles are removed from the road.

By using this system energy consumption is also reduced because nowadays the manually operated street lights are not switched off even when the sunlight comes and also switched on earlier before sunset. In this project, there is no need for manual operation like ON time and OFF time setting. This project clearly demonstrates the working of transistors in the saturation region and cut-off region. The working of the relay is also known.

We will use a hydraulic bridge between the automatic stress light roads. This concept comes under "FLUID MECHANICS".

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INTRODUCTION

Street light controllers are smarter versions of the mechanical or electronic timers previously used for street light ON-OFF operation. They come with energy conservation options like twilight saving, staggering or dimming. Also many street light controllers come with an astronomical clock for a particular location or a Global Positioning System (GPS) connection to give the best ON-OFF time and energy saving.

Automatic Street Light Control System is a simple and powerful concept, which uses a transistor as a switch to switch ON and OFF the street light automatically. By using this system manual work is removed. It automatically switches ON lights when the human being or vehicles stepped on the road due to this pressure on road comes into play and then lights will switch on. This is done by a sensor called Light Dependent Resistor (LDR) which senses the light actually like our eyes. It automatically switches OFF lights whenever the human being and vehicles are removed from the road.

In this project we use waste types as a layer of road because types will not decompose easily and produce a huge amount of harmful gases. It harms the environment, creates pollution due to which human beings will be affected and it's not good for the human, animals and creatures for survival.

Hydraulics is a technology and applied science using engineering, chemistry, and other sciences involving the mechanical properties and use of liquids. Fluid Mechanics provides the theoretical foundation for hydraulics, which focuses on applied engineering using the property of fluids. Hydraulic is used for the generation, the transmission of power by pressuring of fluid, controlling, and many applications. This project comes under "FLUID MECHANICS".

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ABOUT THE MODEL

CONCEPT OF HYDRAULIC MECHANICS:-

The basic concept behind any hydraulic system is Pascal's Law. "Pressure applied anywhere to the body of fluid causes a force to be transmitted equally in all directions, with the force acting at right angles to any surface in contact with the fluid."

Hydraulic Powered Track is a wonderful application when it comes to fluid mechanics, these are used in the applications of parking systems or if there is huge traffic on the bridges this system comes under consideration. In the project, the track is hydraulically controlled using syringes filled with fluid. It consists of a predesigned manner that is guided in a constrained way to obtain the required output. The process is governed by a law that was introduced by Pascal known as Pascal's Law.

The universal principle used in the project was Pascal's law. The law states that when pressure is applied at one end of a fluid constrained in a constrained volume the pressure due to that force is equally transmitted to all points of the fluid, which are acted upon by the same pressure. Using the same concept of the law it is implemented in the project.
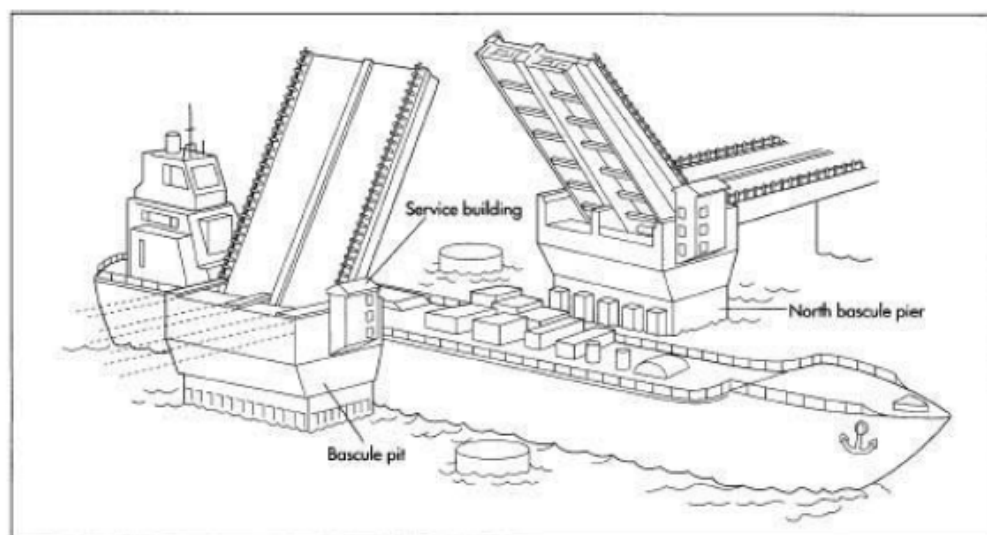
WORKING OF HYDRAULIC BRIDGE:-

Pascal's law is the principle behind hydraulic bridge working. The hydraulic bridge uses petroleum-based hydraulic fluids for operations. Hydraulic motors and hydraulic cylinders are two important components used for powering the bridge with hydraulics. For a bridge operation, the amount of gearing required is dependent on the type of hydraulic motor.

The hydraulic cylinders can be divided into tie rods and welded depending on the construction. The welded hydraulic cylinder is suitable for providing longevity for the bridge.

Counterbalance valves used in the structure will help to carry varying loads and hold the bridge firmly in any position. Smooth and accurate acceleration and deceleration are provided by the proportional valve used.

EXAMPLES:- Tower Bridge, London, England; Gateshead Millennium Bridge, Newcastle, England; Pont Jacques Chaban-Delmas, Bordeaux, France; Puente de la Mujer, Buenos Aires, Argentina; etc.. are some of the famous movable bridges in the world.

CONCEPT OF AUTOMATIC STREET LIGHT:-

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The automatic streetlight control system operates on 12 V DC supply. The automatic streetlight controller has a photoconductive device whose resistance changes proportional to the extent of illumination, which switches ON or OFF the LED with the use of a transistor as a switch.

Light dependent resistor, a photoconductive device has been used as the transducer to convert light energy into electrical energy. The central dogma of the circuit is that the change in voltage drop across the light dependent resistor on illumination or darkness switches the transistor between cut-off region or saturation region and switches OFF or ON the LEDAs we know property of LDR that during the time of day resistance is low therefore voltage at the inverting input (IE pin 2) is higher than the voltage at the on-inverting input (pin3) hence the output at the pin6 is low so the transistor goes into the cut off state which means LED or bulb will not glow.

LIST OF COMPONENTS:-

1. LDR-1

2. TRANSISTOR BC -547 NPN-2

3. RESISTOR 1K, 330 ohm-3

4. LED-1

5. PCB-1

6. POWER SUPPLY 6V OR 9V-1

WORKING OF AUTOMATIC STREET LIGHT CONTROLLER:-

To save electricity and reduce man power we can simply convert normal street light into Automatic by using Automatic Street light controller using LDR. We know LDR (Light Dependent Resistor) has been used in many applications and by proper employing in circuit LDR can acts as a perfect light sensing element.

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Circuit of a compact and true solid-state automatic lawn light is described here. The circuit can be used to switch on incandescent garden light bulbs at the desk and switch off them at dawn. A 10 mm encapsulated light dependent resistor (LDR) here works as the twilight detector. The whole circuit can be housed in a very small plastic cabinet. For powering the circuit AC household supply is needed. With a little skill and patience, you can easily modify this circuit to drive a number of white LED strings, instead of the incandescent bulb load at the output.
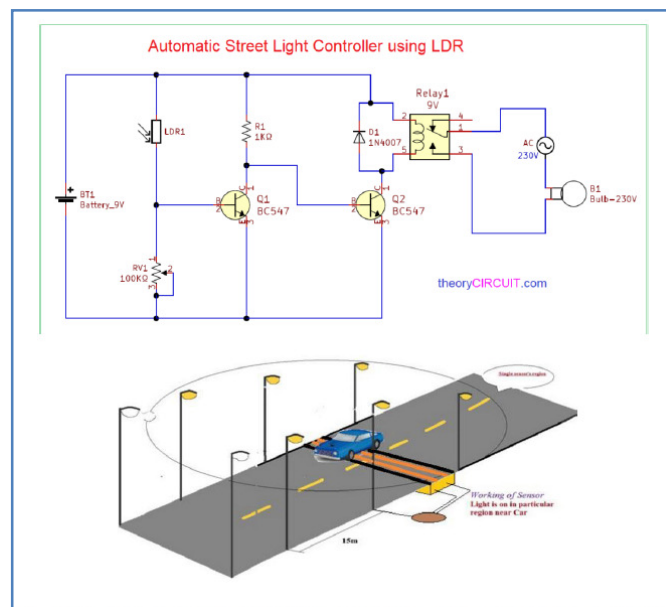
ADVANTAGES & DISADVANTAGES:-

By using this automatic system for street light controlling, we can reduce energy consumption because the manually operated street lights are not switch off properly even the sun light comes and also not switched on earlier before sunset.

• Low cost

• Automated operation

• Low power consumption

• Very flexible

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• Easy to manufactured

In sunny and rainy days, on and off time differ notice which is one of the major disadvantages of using a timer circuit or manual operation for switching the street light system.

CONCLUSION:-

The Streetlight controller using ldr based Light intensity & traffic density, in today's up growing countries will be more effective in case of cost, manpower and security as compare with today's running complicated and complex light controlling systems. Automatic Street Light Controlling System puts up a very user friendly approach and could increase the power.

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